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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,578	01/30/2004	Robert G. Lowery	112520.00004	8954

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Sara D. Vinarov
Quarles & Brady LLP
P O Box 2113
Madison, WI 53701-2113

EXAMINER	
STAPLES, MARK	

ART UNIT	PAPER NUMBER
1637	

DATE MAILED: 10/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/769,578	LOWERY ET AL.	
	Examiner	Art Unit	
	Mark Staples	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09/08/2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) *16-18 and 25-27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15,19-24,28,and 29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01/30/2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date : 05/03/2004, 06/01/2004, 05/18/2005, 03/16/2006, 05/30/2006.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-15 and 19-24 and species in the reply filed on September 9, 2006 is acknowledged. The traversal is on the ground(s) that that the subject matter of Groups I-III is intimately linked in a manner that searching of one group would inevitably overlap with other groups. Further traversal was on the grounds that it would be burdensome for the Office to examine several applications of different Groups versus one application containing all Groups. This is not found persuasive because a search of one Group would be unlikely to uncover all the elements of any other Group. And even if the search of one group overlapped with the search for another group, such overlap would be minimal. As presented in the Election/Restriction requirement mailed on July 24, 2006, each of Groups I, II, and III are independent and distinct. To search each of these groups would require three separate searches, even if some overlap occurred. Three separate searches would be burdensome.

The requirement is still deemed proper and is therefore made FINAL.

Claims 16-18 and 25-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on September 9, 2006.

In summary, claims 1-15 and 19-24 of Group I and new claims 28-29 as filed on September 9, 2006 will be fully examined for patentability.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

3. The use of the trademarks such as BODIPY and ALEXA have been noted in this application. These and any others should be capitalized wherever they appear and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5, 7-15, and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 a) and 28 a) recite "a donor molecule", that is one donor molecule. This donor molecule then forms the donor-product of claims 1 b) and 28 b). Claims 1 d) and 28 d) then recite the residual donor molecule. However, as the claim is written there can be no residual donor molecule as the donor molecule has been reacted to form the donor-product. This renders claim 1, dependent claims, and claim 28 indefinite. Use of plurals may be intended. It may be that the phrase "donor molecules" is intended in claims 1a) and 28 a). Likewise, plurals may be intended for "acceptor" and other substances in the method, as appropriate. Alternatively, making "donor molecule" a collective noun by removing the preceding article "a" may also achieve the intended meaning. Some other form of clarification may be possible. Clarification is needed.

Claims 1-5, 7-15, and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 c) and 28 c) recite a macromolecule that specifically recognizes donor-product and detectable tag (emphasis by Examiner). Claims 1 d) and 28 d) recite competitively displacing detectable tag by donor-product. It is indefinite as to how this

may occur. For instance, the macromolecule may have two separate binding sites, one specific for donor-product and the other specific for detectable tag. How donor-product would then displace detectable tag is unclear and hence indefinite. The foregoing example reads on the claims, as what binds to the macromolecule and the relationship, if any, of the detectable tag to donor-product in claims 1 d) and 28 d) are indefinite. It may be intended that the macromolecule binds either tagged donor-product or untagged donor-product at the same site(s) of binding. And it may be intended as well that that one of the two competitive species is the detectable tag covalently bound to or otherwise strongly bound to donor-product. The other competitive species would then be untagged donor-product. Clarification is needed.

Claim 23 contains the trademark/trade name ALEXA FLUOR®. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe dyes and, accordingly, the identification/description is indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-3, 7-10, 12-15, and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seethala (2000) in view of either Li et al. (2000) or Glassler et al. (2001).

Regarding claims 1 and 3, Seethala teaches a method of detecting a donor-product of a group transfer reaction, the method comprising:

a) reacting a donor molecule with an acceptor in the presence of a catalytically active enzyme (entire reference, especially page 63, 1st paragraph, 4th sentence to end of paragraph, peptide or protein);

b) forming the donor-product and an acceptor-X which is the phorphorylated product of a substrate of peptide or protein (entire reference, especially page 63, 1st paragraph, 4th sentence to end of paragraph, phosphorylated peptide or protein);

c) contacting the donor-product comprising a nucleotide, ADP, and an acceptor-X where X is the covalently linked phosphate with a first complex comprising a a macromolecule that specifically recognizes the acceptor-X and acceptor-X covalently linked to a detectable tag (tag conjugate) which is capable of producing an observable (see page 63, 1st paragraph, last sentence, phosphorylated peptide or protein and fluorescent tyrosine phosphorylated peptide as the detectable tag);

d) competitively displacing the detectable tag conjugate of the first complex by the acceptor-X to generate a second complex and a displaced detectable tag (entire reference, especially page 63, 1st paragraph, 4th sentence to end of paragraph); and

e) detecting a change in the observable produced by the detectable tag bound to the first complex and the displaced detectable tag (entire reference, especially Figure 1).

Regarding claim 2, Seethala teaches quantifying the observable (entire reference, especially Figure 2).

Regarding claim 7, Seethala teaches wherein the detectable tag is a fluorescent molecule (entire reference, especially Figure 1).

Regarding claim 8, 9, 20, and 21, Seethala teaches a method comprising catalytic activity of tyrosine kinases (entire reference, especially title and abstract).

Regarding claim 10, Seethala teaches a method of immunoassay (entire reference, especially to antiphosphotyrosine antibody in abstract).

Regarding claims 12 and 24, Seethala teaches a method for screening a chemical library of compounds for tyrosine kinase inhibitor (entire reference, especially p. 69, 1st paragraph under *Concluding Remarks*).

Regarding claim 13, Seethala teaches wherein the molecule is capable of altering the function of the acceptor by phosphorylation (entire reference, especially abstract).

Regarding claim 14, Seethala teaches wherein the molecule is a drug, capable of a therapeutic effect (entire reference, especially p. 61, 4th sentence of 2nd column).

Regarding claim 15, Seethala teaches a high throughput technique comprising a mutliwell plate, microplate wells (entire reference, especially p. 66, 2nd column, 3rd sentence).

Regarding claim 19, Seethala teaches as noted above and teaches a method of measuring and comparing fluorescence polarization (entire reference, especially Figures 1 and 2).

Regarding claim 22, Seethala teaches wherein the donor product is adenosine diphosphate (entire reference, especially Table 2 line 1, Phosphate donor ATP).

Regarding claim 23, Seethala teaches where the fluorophore is fluorescein (see Figure 2).

Seethala does not teach the obverse method of detection. That is, Seethala does not teach where the tag is coupled to the donor-product, ADP. Consequently, Seethala does not teach detection of the donor-product, ADP, by its displacement of the tagged donor-product, tagged ADP.

Regarding claim 7, Seethala does not teach where a fluoresecent tag is conjugated to a nucleotide.

Li et al. teach where a fluorescent tag is coupled to adenine, a nucleotide, and can compete with untagged adenine for a binding site on a macromolecule, with measurable change in fluorescence polarization of bound and unbound tagged adenine (entire reference, especially Figure 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teaching of Seethala by tagging the adenine within adenosine diphosphate as suggested by Li et al. with a reasonable expectation of success. The motivation to do so is provided by Li et al. who teach tagged adenine which can be used as an alternative of tagged adenine in ADP of the method of Seethala to monitor untagged ADP. Also, it was known to one of ordinary skill in the art that measurement of any product of a reaction could be used to monitor that reaction. Thus, the claimed invention as a whole was *prima facie* obvious over the combined teachings of the prior art.

Seethala teaches as noted above.

Glasser et al. teach where a fluorescent tag is coupled to ADP (entire reference, especially Figure 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teaching of Seethala by tagging ADP including a fluorescent molecule as suggested by Glasser et al. with a reasonable expectation of success. The motivation to do so is provided by Glasser et al. who teach that tagged ADP can be detected and measured. Thus, the claimed invention as a whole was *prima facie* obvious over the combined teachings of the prior art.

7. Claims 4, 6, 11, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seethala (2000) in view of either Li et al. (2000) or Glassler et al. (2001) as applied to claims 1-3, 7-10, 12-15, and 19-24 above, and further in view of Bredehorst (1978).

Seethala, Li et al., and Glassler et al. teach as noted above.

Seethala, Li et al., and Glassler et al. do not teach an antibody to a donor product such as ADP.

Bredehorst et al. teach production of antibodies against ADP-ribose and analogs. Bredehorst et al. teach how design of the immunogen can lead to desired specificity. Bredehorst et al. further teach an antibody which recognizes AMP, a nucleotide and a donor-product. Bredehorst et al. also show that this same antibody can distinguish between ADP which can be a donor-product and ATP which can be a donor-substrate by relative binding of 1.6 to 0.1, ADP to ATP. (entire reference, especially Table 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Seethala and either Li et al. or Glasser et al. to use an antibody as taught by Bredehorst et al. which binds to the donor product, ADP, with a reasonable expectation of success. The motivation to do so is provided by Bredehorst who teach that that antibodies to ADP can be produced for quantification of ADP over ATP. Bredehorst et al. further teach strategies for arriving at a desired antibody specificity. Thus, the claimed invention as a whole was *prima facie* obvious over the combined teachings of the prior art.

8. Claims 4, 5, 6, 11, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seethala (2000) in view of either Li et al. (2000) or Glassler et al. (2001) as applied to claims 1-3, 7-10, 12-15, and 19-24 above, and further in view of Kawamitsu et al. (1984).

Seethala, Li et al., and Glassler et al. teach as noted above.

Seethala, Li et al., and Glassler et al. do not teach either an antibody or a monoclonal antibody to a donor product such as ADP.

Kawamitsu et al. teach monoclonal antibodies which bind to poly adenosine diphosphate (poly(ADP-Rib) and to the monomer unit, Ado(p)-Rib-P, a nucleotide and donor-product from the diphosphate. A monoclonal antibody is a species of antibody. Kawamitsu et al. also teach how design of the immunogen and selection of clones can lead to a monoclonal antibody of desired specificity.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Seethala and either Li et al. or Glasser et al. to use a monoclonal antibody as taught by Kawamitsu which binds to the donor product with a reasonable expectation of success. This method is a fluorescence polarization immunoassay (FPIA). The motivation to do use this approach is provided by Kawamitsu et al. who teach that that antibodies to Ado(p)-Rib-P can be successfully produced for detection of Ado(p)-Rib-P. Kawamitsu et al. further teach strategies for arriving at a desired antibody specificity. Thus, the claimed invention as a whole was *prima facie* obvious over the combined teachings of the prior art.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-15, 19-24, 28, and 29 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 8-16 and 18 of copending Application No. 11,353,500. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application by Lowry et al. contain the critical elements of claims 8-12 in the copending Application No. 11,353,500 by Lowry et al. Claims of the instant application are also drawn to the species of monoclonal antibody (claim 5 in part), kinase or kinase reaction (claims 9, 21, 28, and 29 in part), ADP (claims 22, 28, and 29 in part), and fluorescein (claims 22, 28, and 29 in part). These are species of genus found in claims 8-12 of copending Application No. 11,353,500.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

9. No claim is free of the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Staples whose telephone number is (571) 272-9053. The examiner can normally be reached on Monday through Friday, 9:00 a.m. to 6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571) 272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mark Staples MS
Examiner
Art Unit 1637
September 25, 2006

KENNETH R. HORLICK, PH.D
PRIMARY EXAMINER
9/26/06